Interactive Fire Detection Systems

Autroprime®

AUTRO SAFE
Self Verify®

Connecting Loop Units

Protecting life, environment and property...

AUTRONICA

CE

Table of Contents

1. Introduction

1.1 About the Handbook

This document provides information on how to connect detectors and other loop units to the Interactive Fire Detection Systems **Autroprime** and **AutroSafe**.

Note that some loop units can be connected to AutroSafe only (the indication “AutroSafe only” is written in the beginning of these chapters).

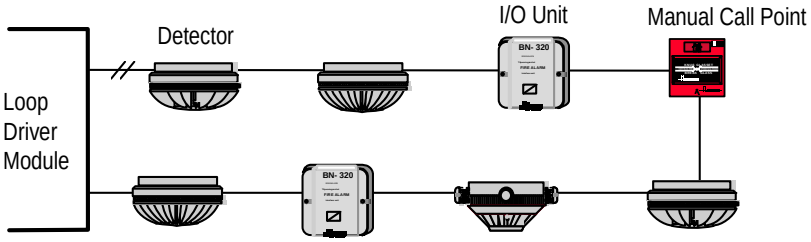
For more detailed information on loop units, refer to the datasheet for each specific unit.

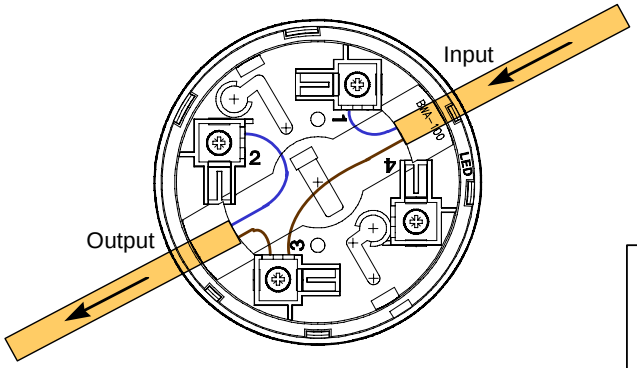
1.2 The Reader

This handbook is intended for technical personnel.

2. Connections to Detectors

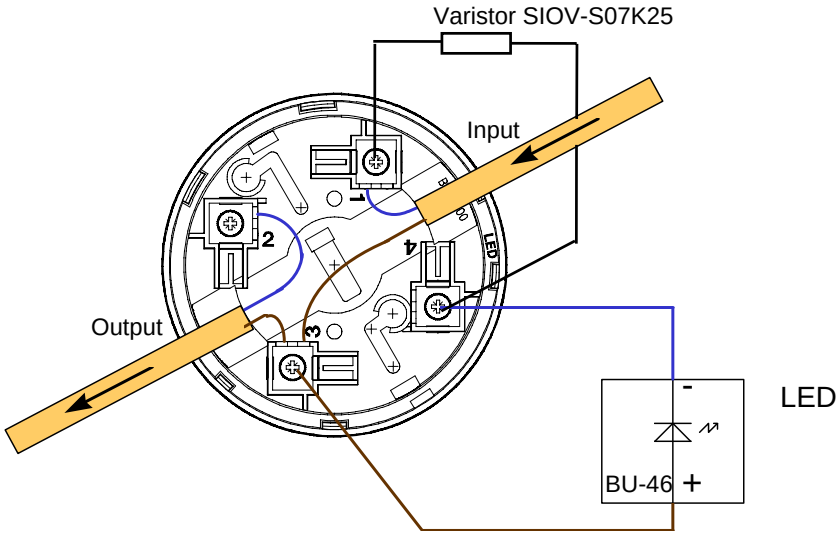
2.1 Connecting Detectors





1 - IN
2 - OUT
3 + COMMON
4 - LED

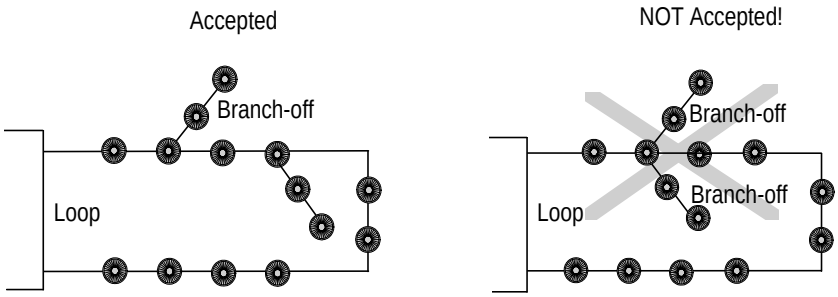
2.2 LED Connection on Detector

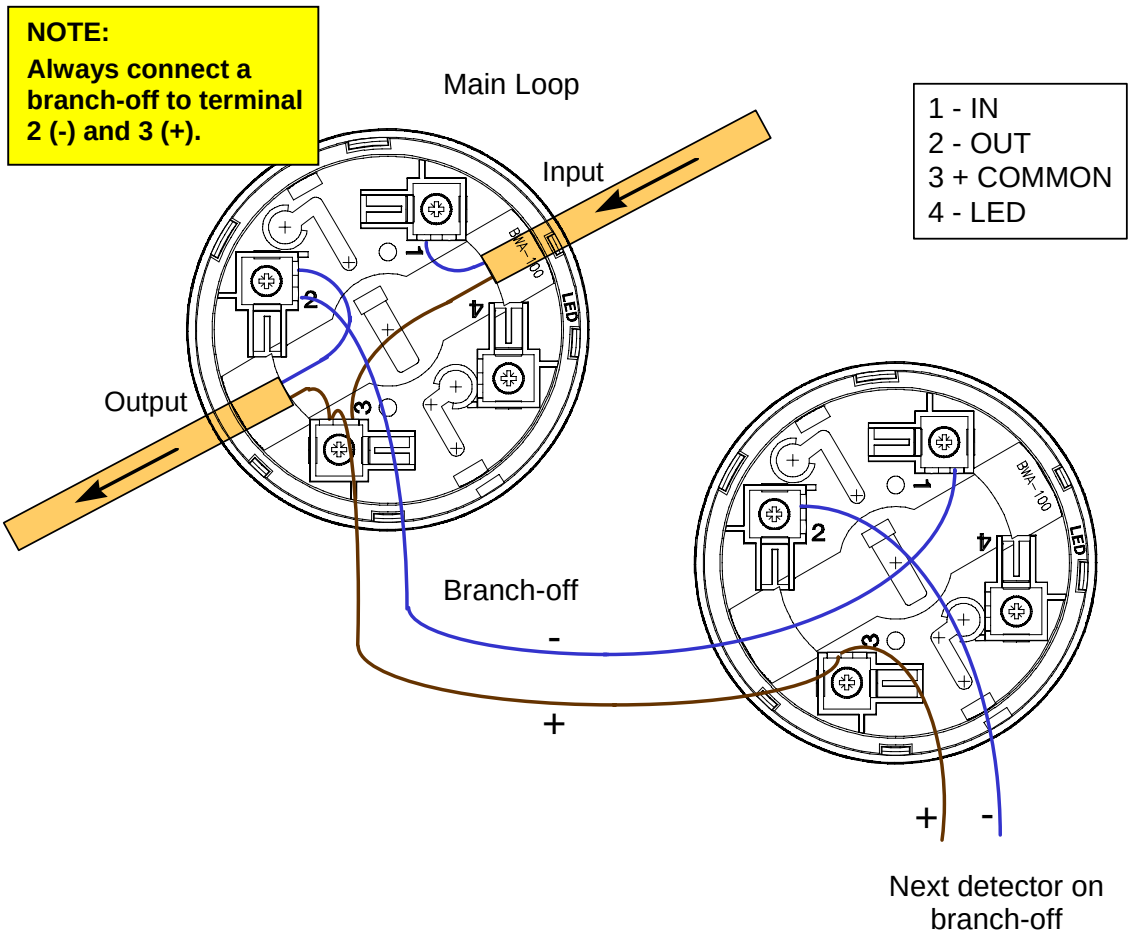


2.3 Connection of Branch-off

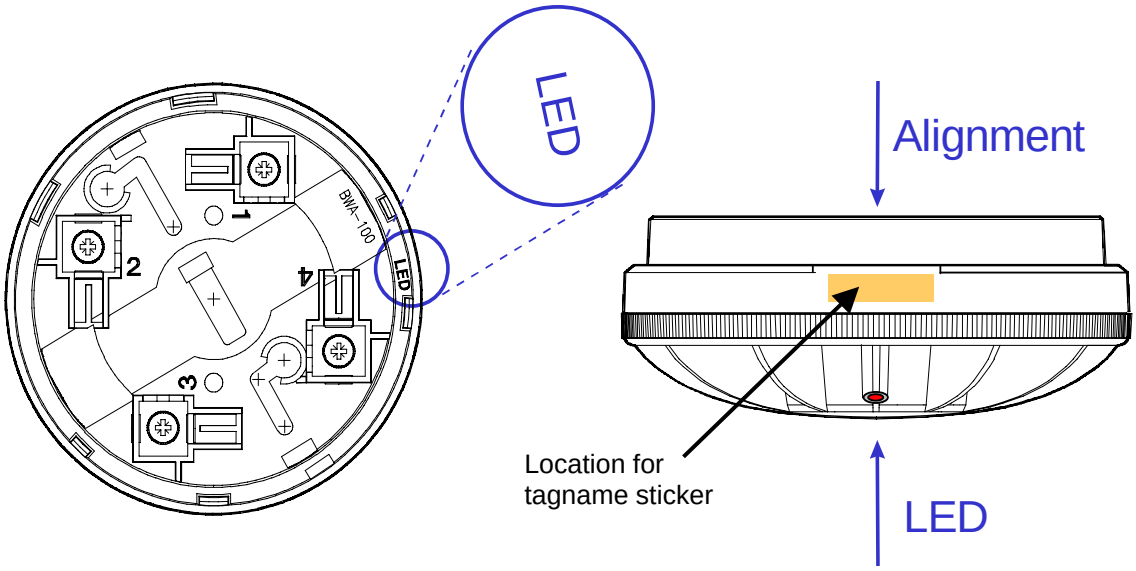
If necessary, a *branch-off* can be connected to a detection loop if the existing cable layout requires this, but this is *not* recommended, as the safety will be reduced.

To ensure a correct addressing of the detectors on a branch-off when configuring the system, *there can not be more than one branch-off per detector.* For safety reasons, the number of detectors on each branch-off must be kept to a minimum, as the detectors on a branch-off will not operate in case of a break or shortcircuit on the branch-off. The absolute maximum number of detectors on a branch-off (or an open loop) is 32.

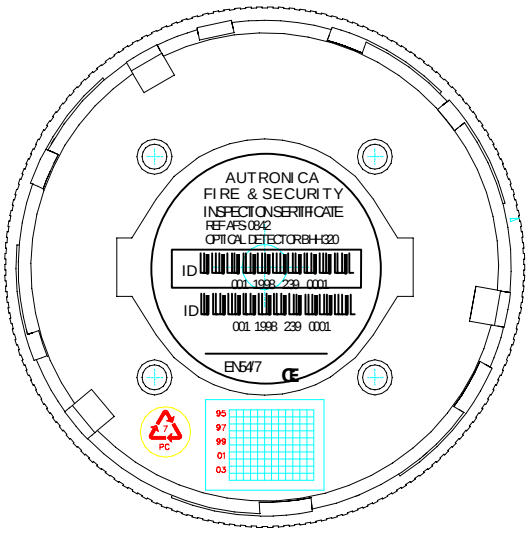




2.4 Detector Head / Base Alignment



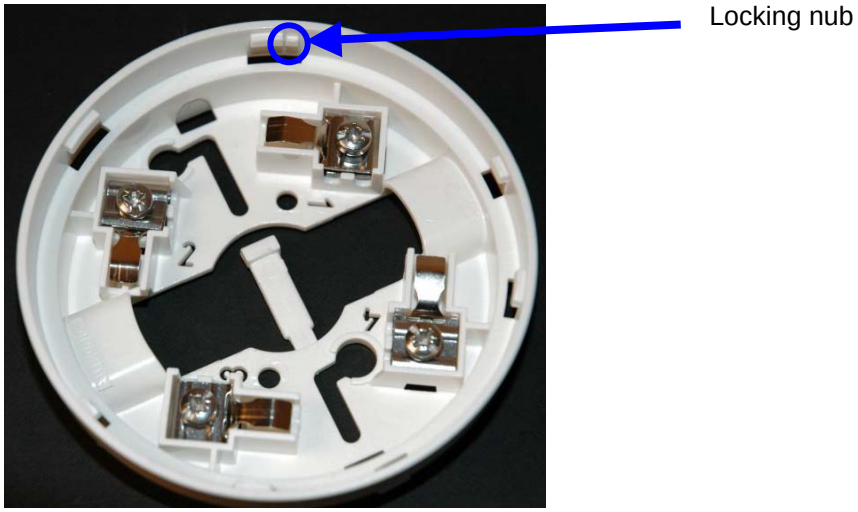
2.5 Detector Label



2.6 Detector Locking Mechanism

2.6.1 Detector Base

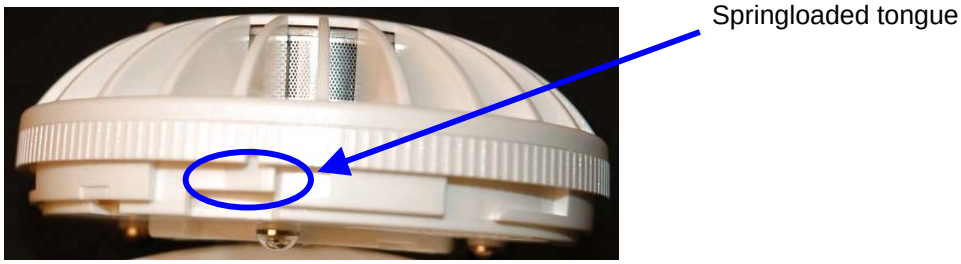
In the detector base a small locking nub will keep the springloaded tongue in an open position to prevent the detector head from being locked. If the locking nub is removed before mounting with a pair of cutting nippers or similar, the detector head will enter a locked position.



Detector base with locking nub

2.6.2 Detector head

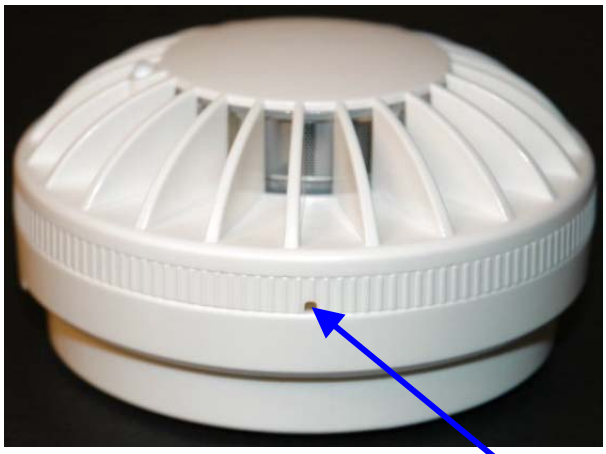
The new springloaded tongue (figure 3) on the detector head will lock the head in a correct position if the locking nub has been removed before mounting.

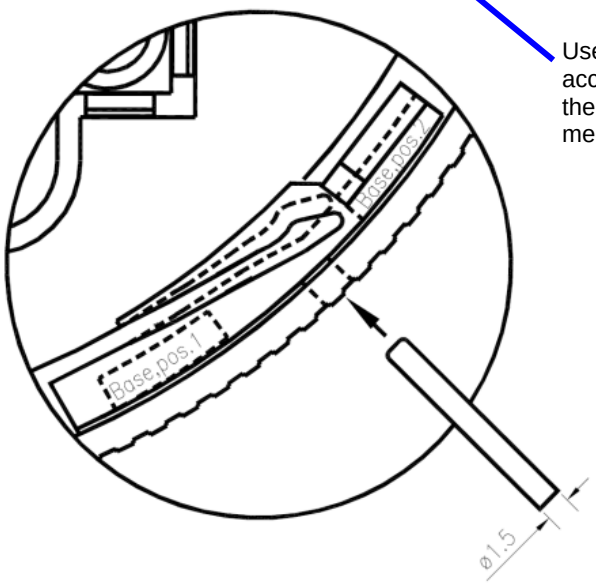


Detector head with springloaded tongue

2.6.3 Removing a locked detector head

- To remove a locked detector head, use a suitable tool (for example a paper clip or similar) to push the springloaded tongue in, and simply turn the detector head counter-clockwise.





2.7 Detector Dust Covers

Autronica detectors are supplied with a dust cover. To avoid possible contamination of the detector chamber during installation, these should remain in place on the detector until commissioning is started.

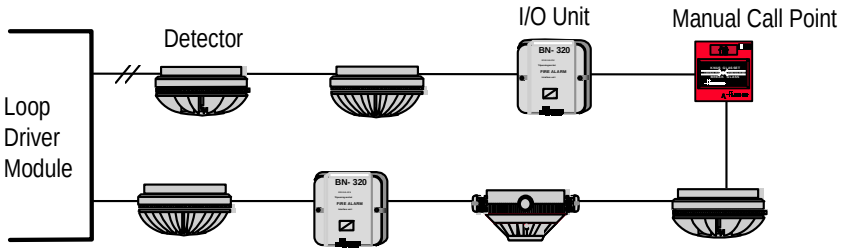
IMPORTANT:
LEAVE DETECTOR DUST COVERS ON UNTIL COMMISSIONING IS STARTED

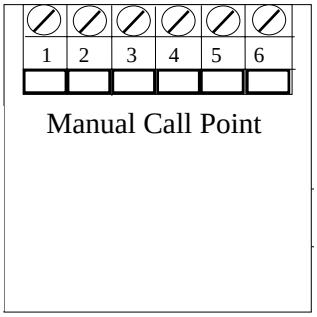
3. Connections to Other Loop Units

3.1 Introduction

The following subsections show the connection of various Loop Units. For more detailed information on the Loop Units described in this chapter, please refer to data sheets and other relevant user documentation from Autronica Fire and Security AS.

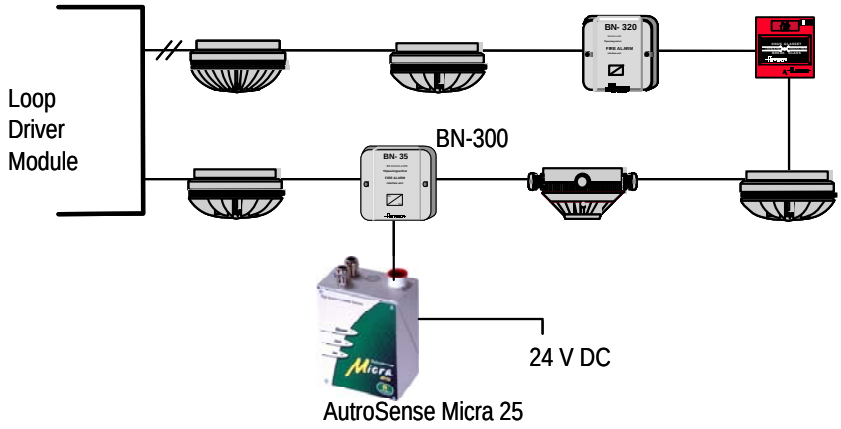
3.2 Manual Call Points

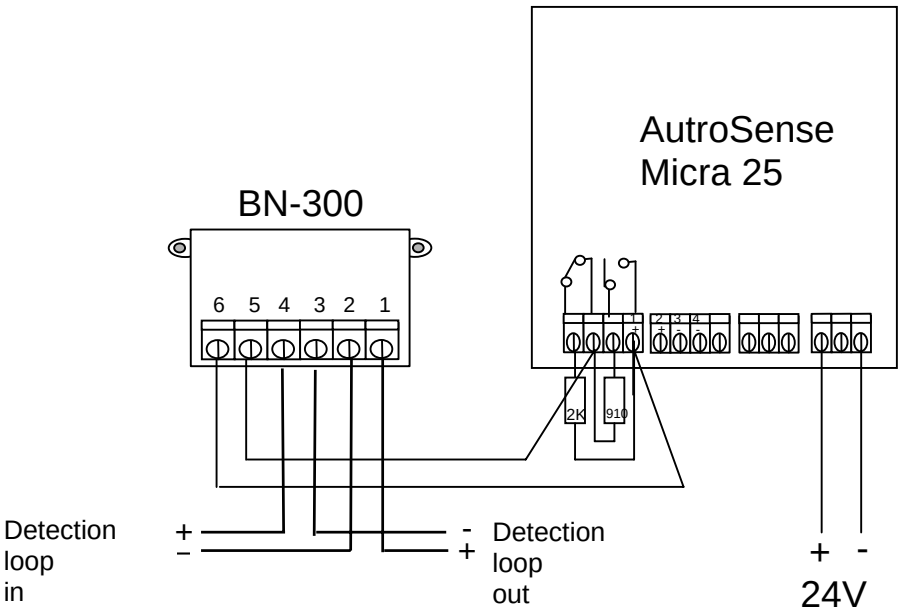




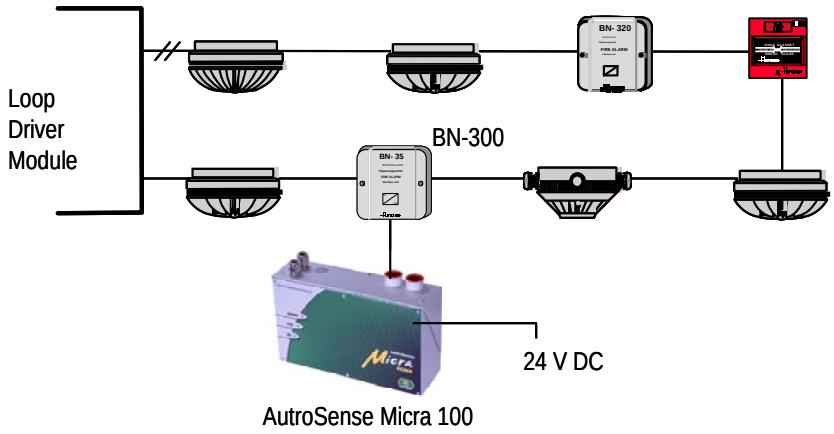
Connector on Manual Call Point	Wires on Detection Loop
1	Pos (+) in
2	Pos (+) out
3	Neg (-) in
4	Neg (-) out
5	Internal connection
6	Internal connection

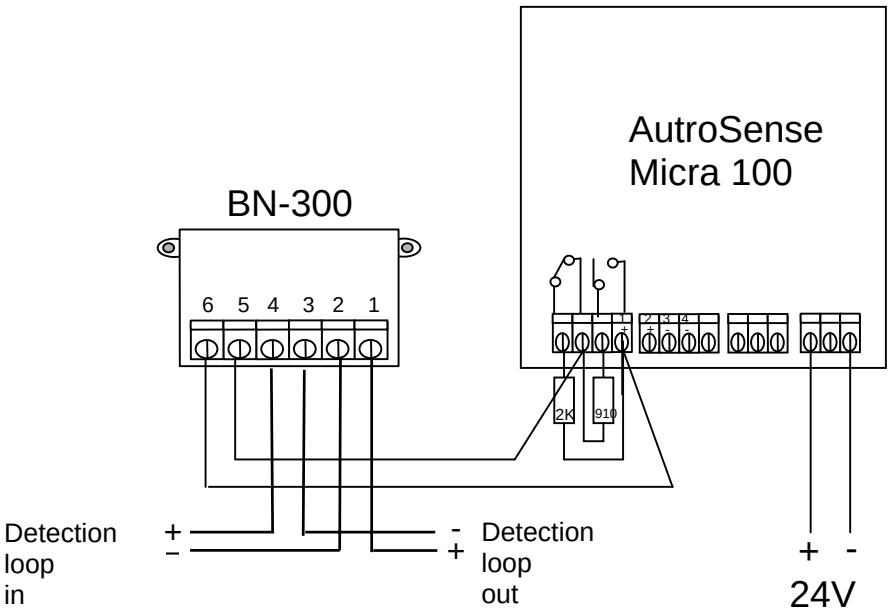
3.3 AutroSense Micra 25 High Sensitivity Aspirating Detector



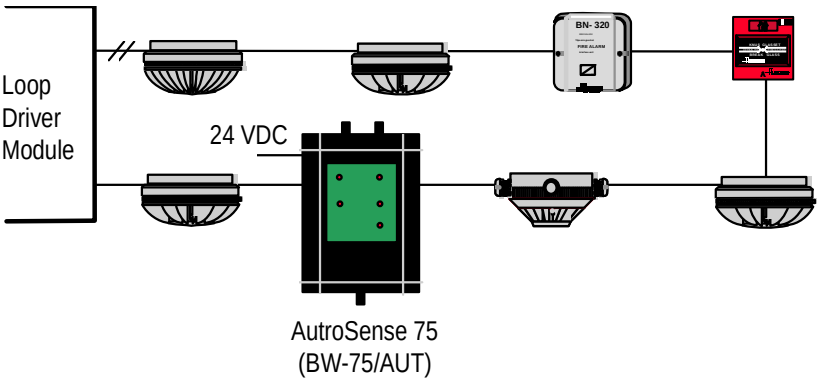


3.4 AutroSense Micra 100 High Sensitivity Aspirating Detector

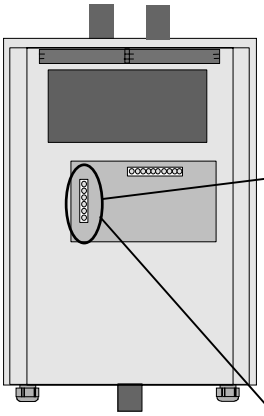




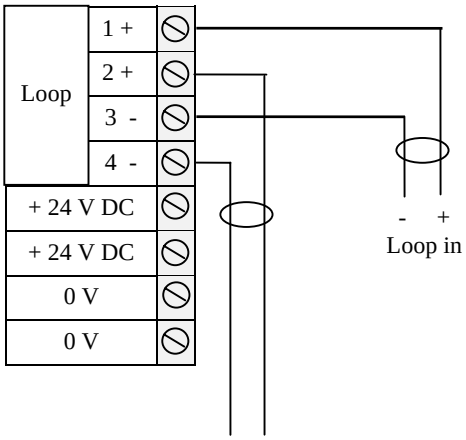
3.5 AutroSense 75 Aspirating Smoke Detector



AutroSense 75
(BW-75/AUT)

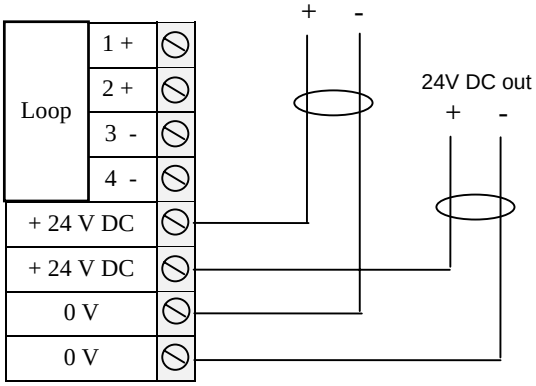


Loop Connection

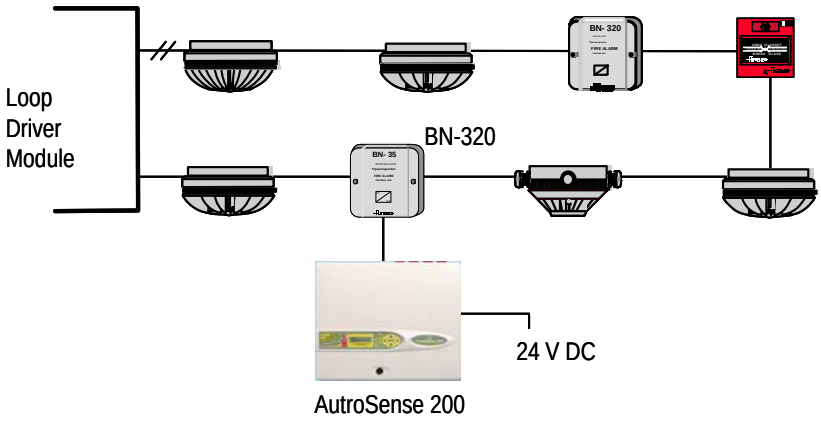


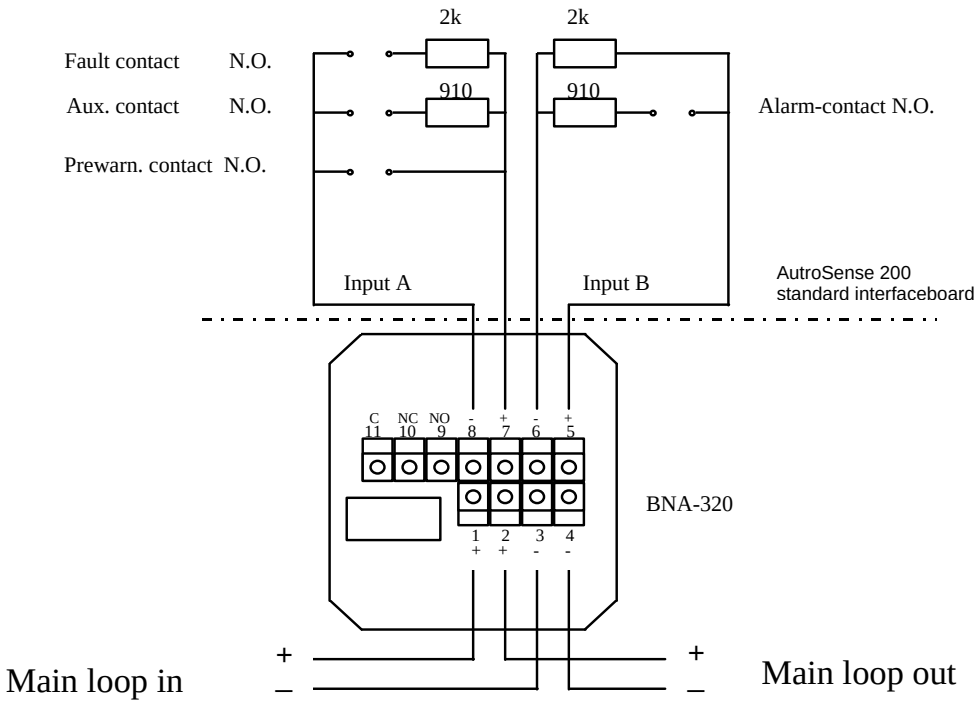
(to next detector)

Connection to 24V DC

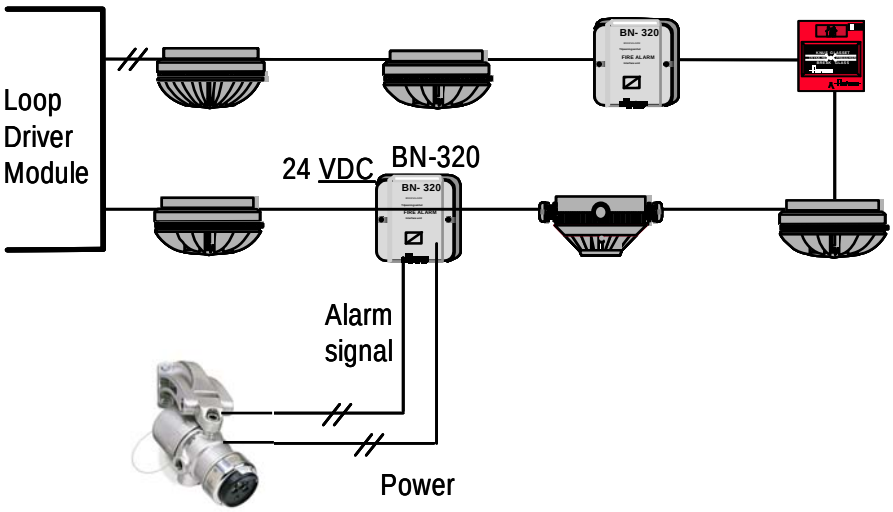


3.6 AutroSense 200 High Sensitivity Aspirating Detector

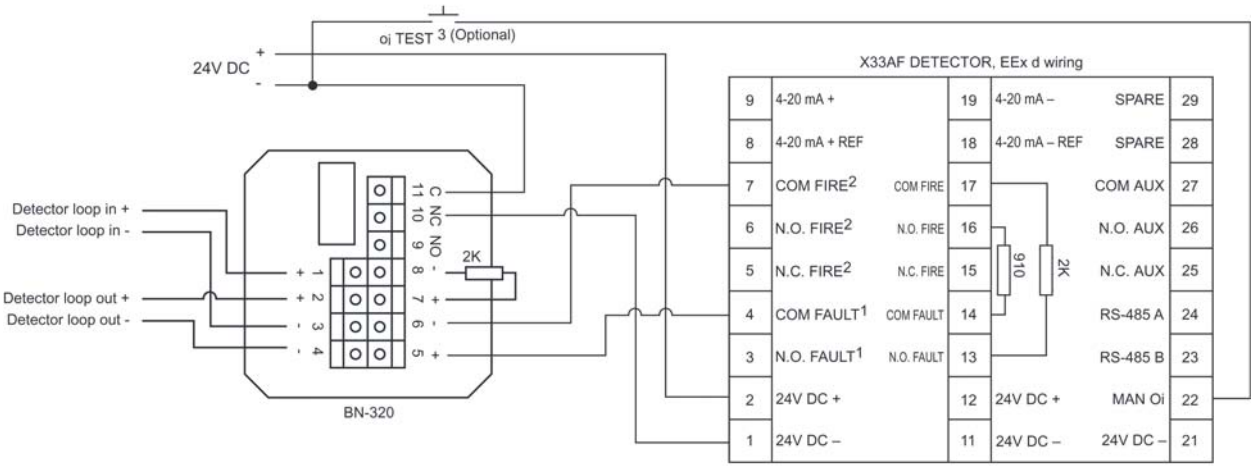




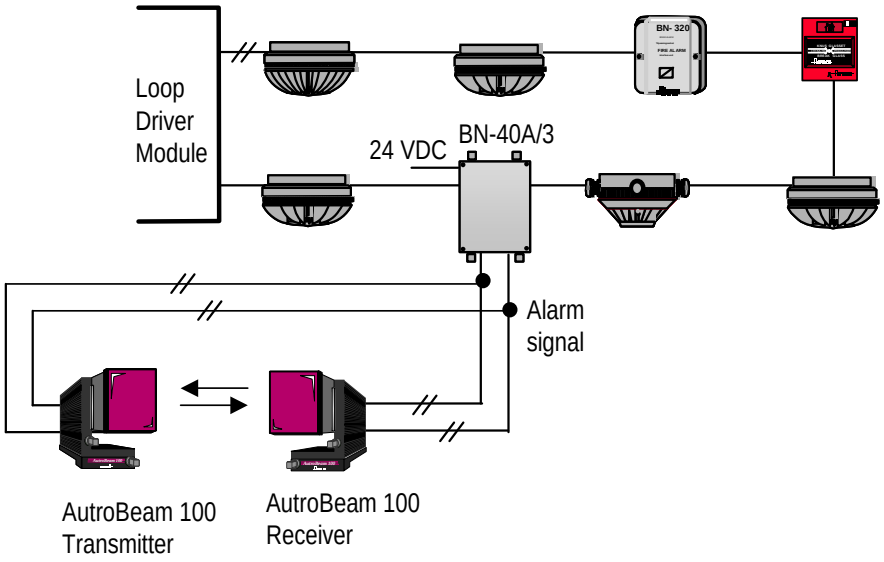
3.7 AutroFlame X33AF Multispectrum Infrared Flame Detector

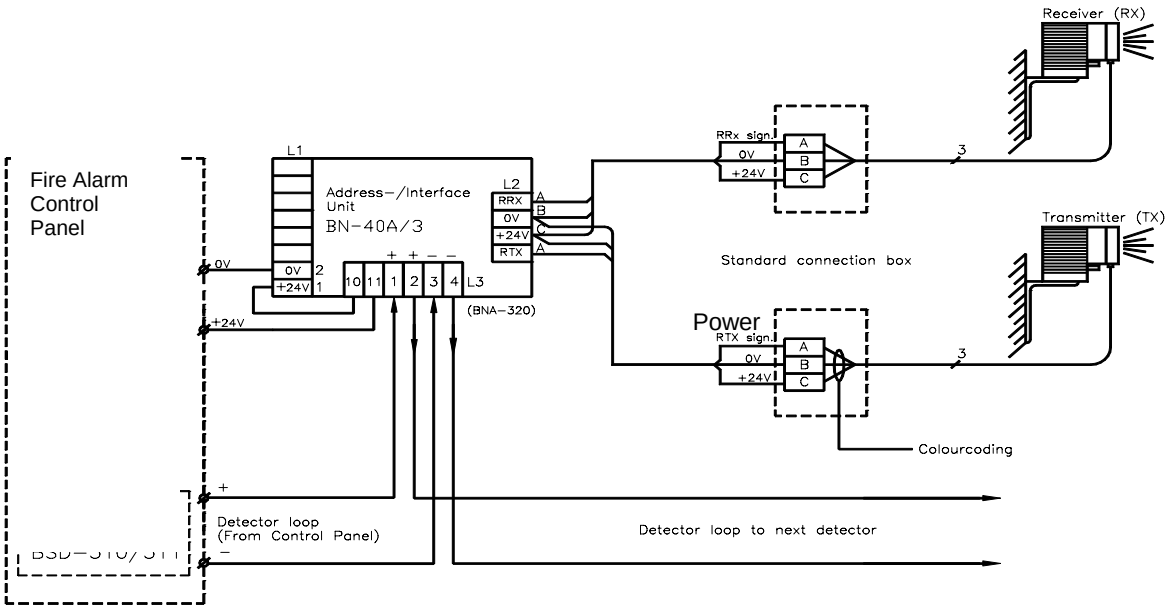


AutroFlame X33AF



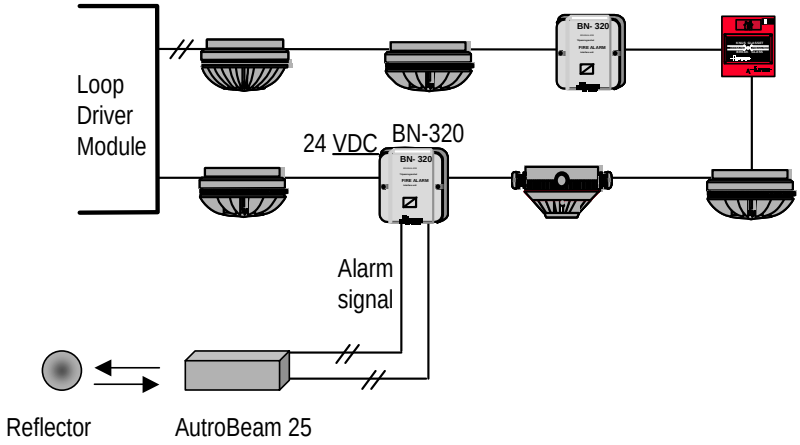
3.8 AutroBeam 100 Infrared Beamdetector System

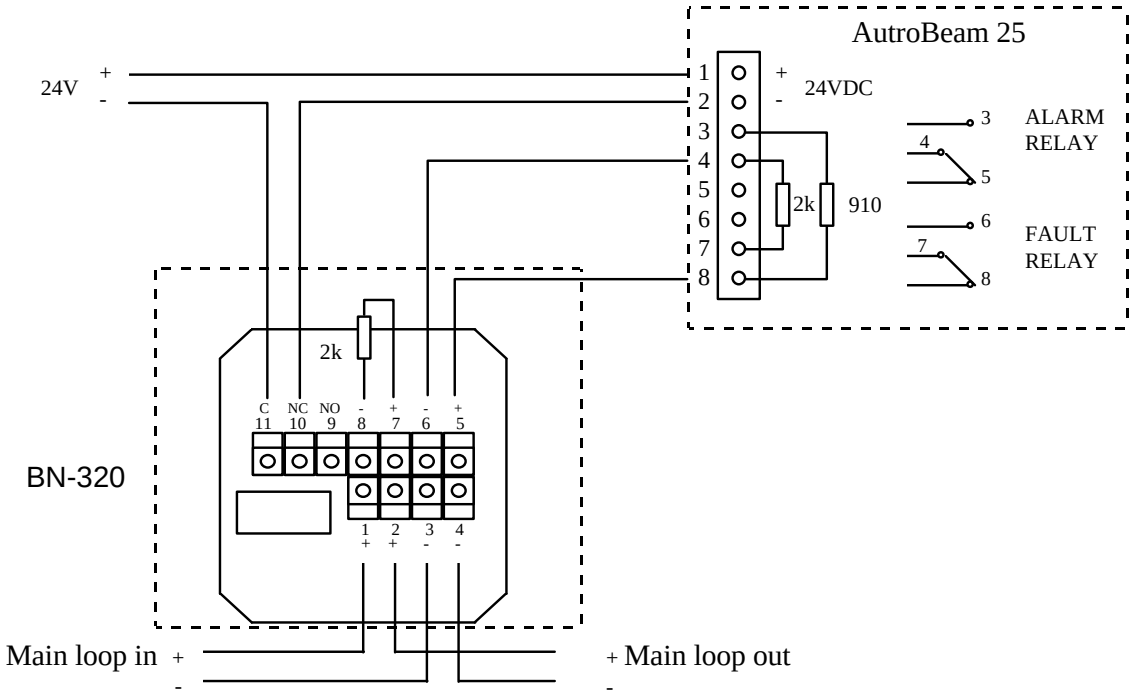




(Drawing No. bs-1160)

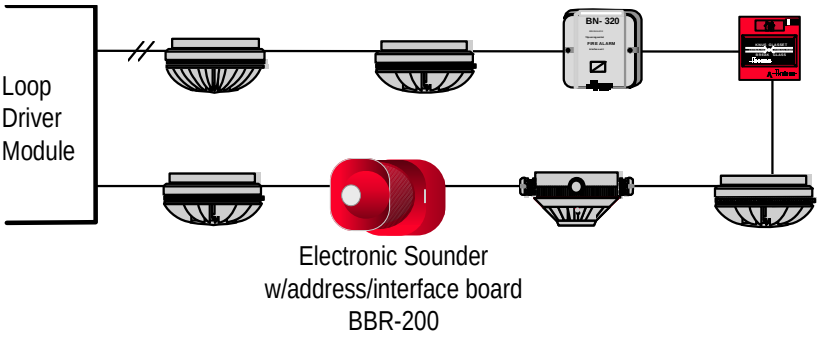
3.9 AutroBeam 25 Infrared Beamdetector



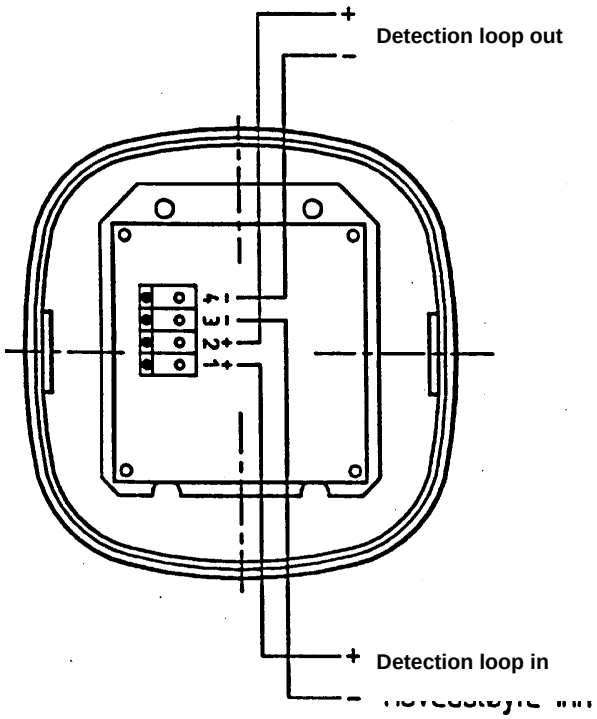


3.10 Programmable Electronic Sounders (BBR-200)

The Electronic Sounder (BBR-200) has its own address / interface board and can be connected directly to a detection loop. The unit is powered from the detection loop. No external power supply is required.

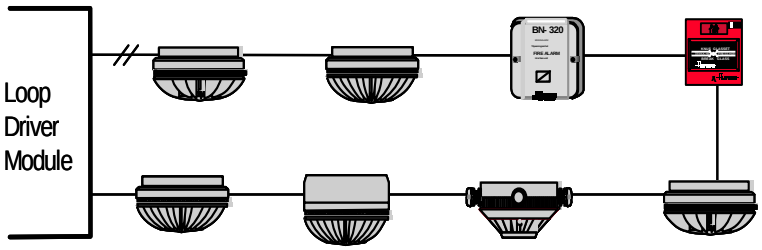


Electronic Sounder
w/address/interface board
BBR-200

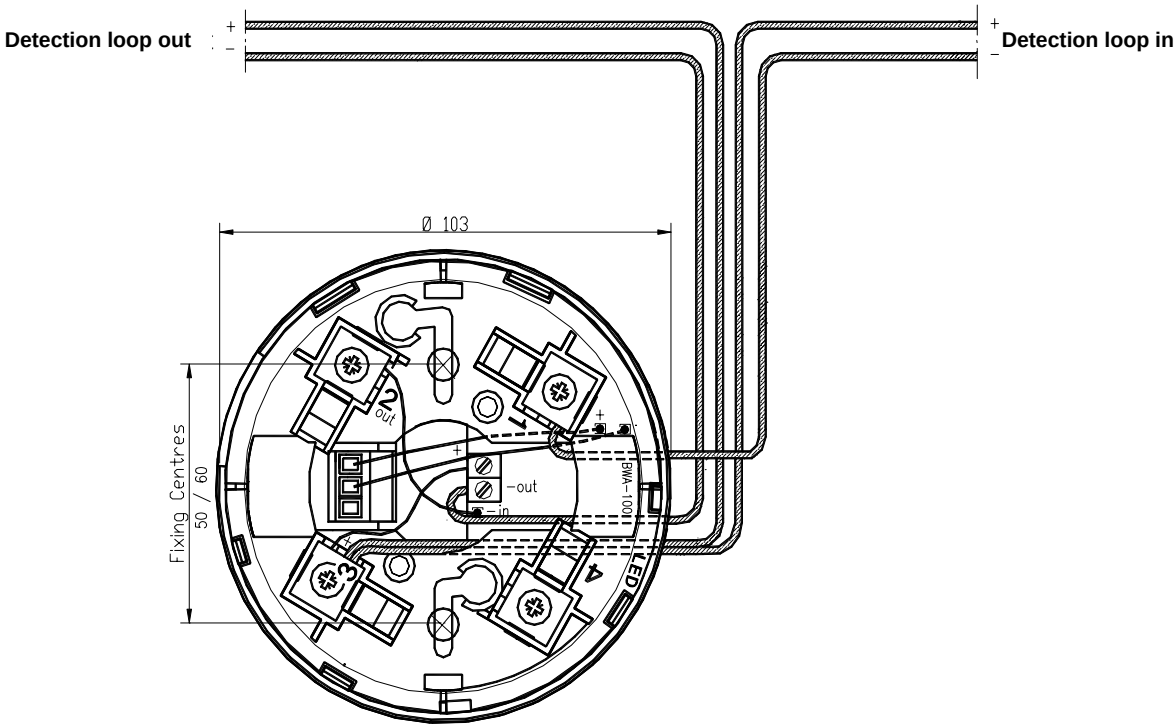


3.11 Addressable Socket Sounder (BBR-110)

The Socket Sounder (BBR-110) is a combined detector base and addressable sounder. The unit is powered from the detection loop. No external power supply is required.



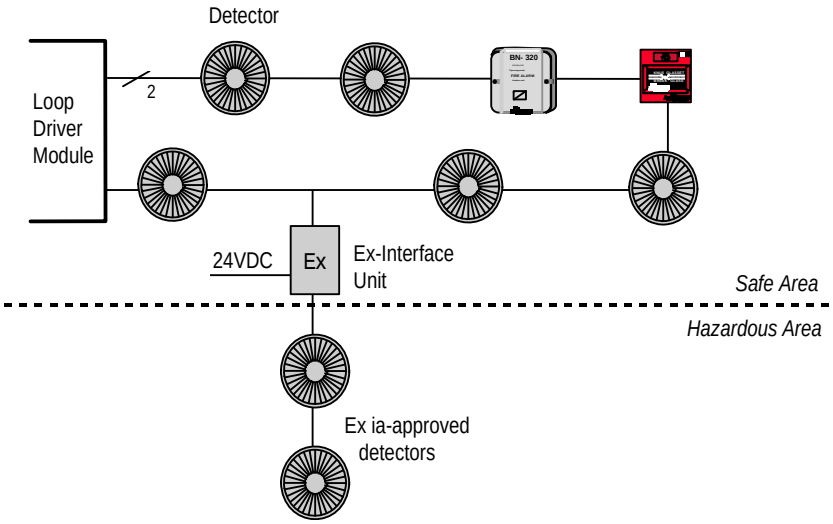
Socket Sounder
BBR-110

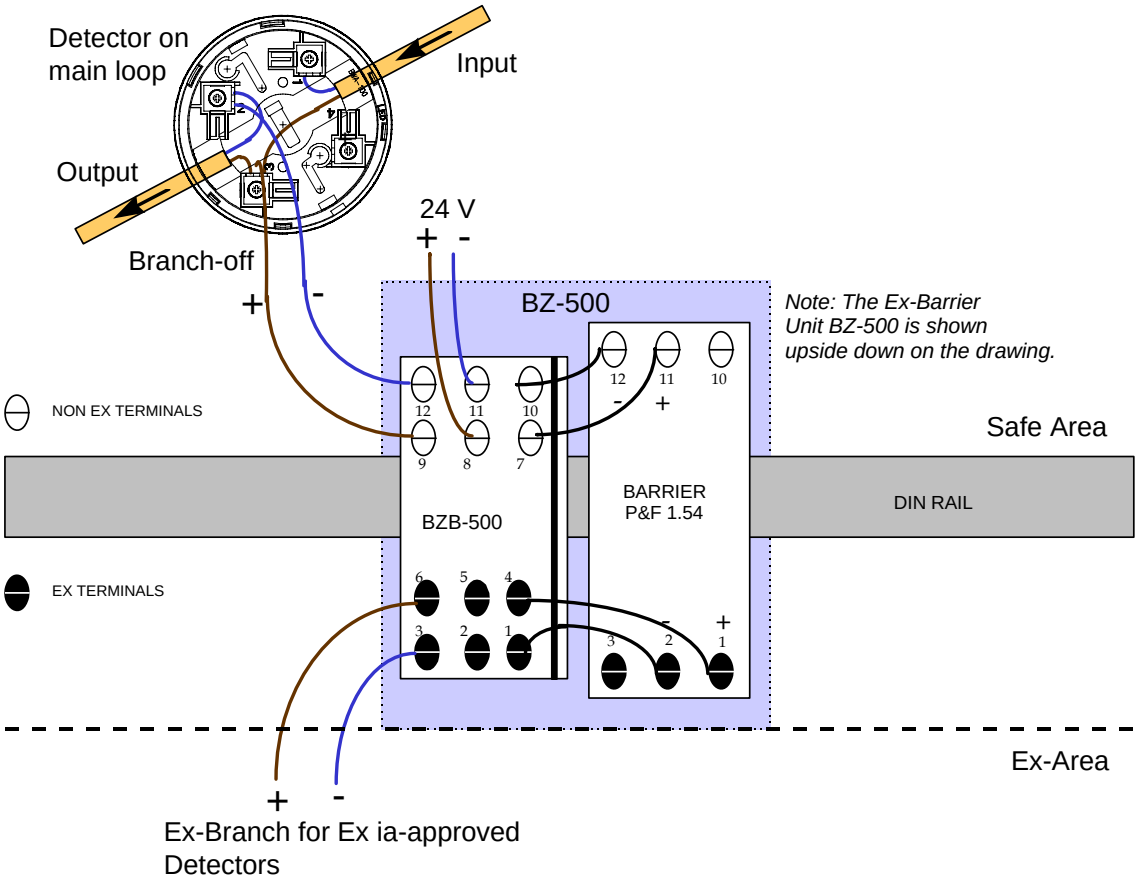


- In:	Terminal connection 1
- Out:	Terminal connection - out on circuit board
Common (+ In and + Out):	Terminal connection 3
External LED:	Terminal connection 4

3.12 Ex ia-Approved Detectors

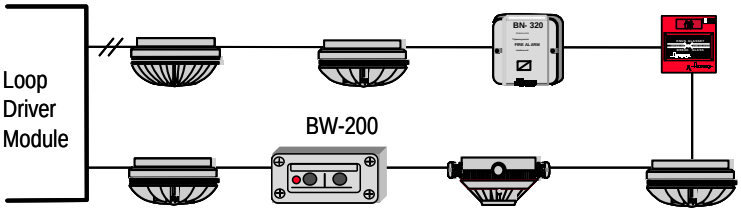
Ex ia-approved detectors can be connected to the system. The *Ex-Barrier Unit (BZ-500)* is used to separate the safe area from the hazardous (Ex) area. A maximum of 20 Ex ia-approved detectors can be mounted as a branch-off from the Ex-Interface Unit on the loop.

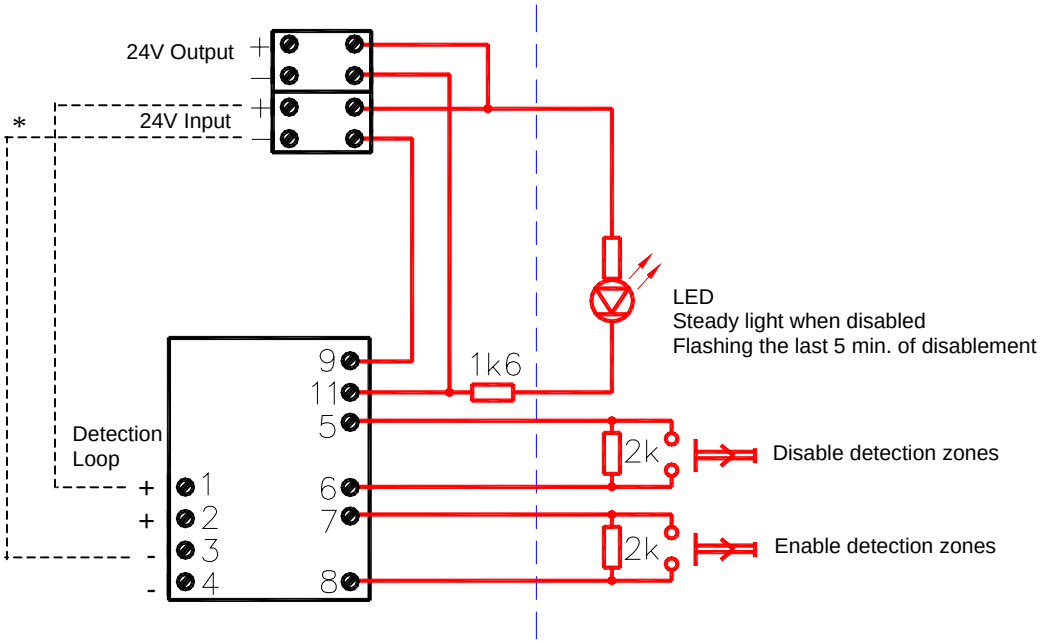




3.13 Disable Input with Pushbuttons (BW-200)

The Disable unit is used to disable one or a number of detection zones. The unit is connected to and powered from the detection loop. The disablement time is configurable.



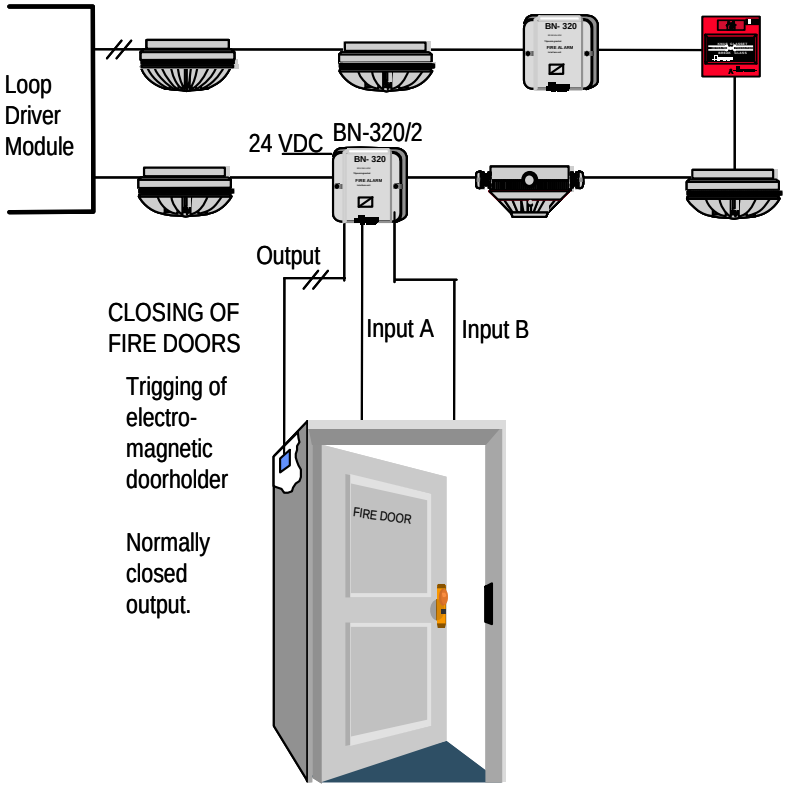


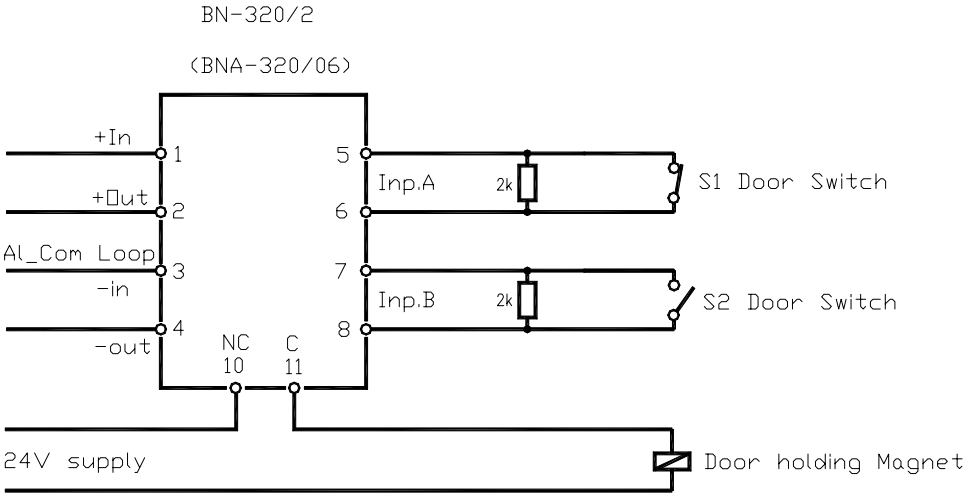
* 1 or 2 units on each loop: Connect detector loop + (1), and detector loop – (3) to 24V input.
More than 2 units on each loop: Use external 24V supply

Separate 24V DC must always be used when if more than 2 units are connected to the loop, or if the 24V output is used.

3.14 Door Control Unit (BN-320/2)

The Door Control unit controls and monitors fire doors. The unit is connected to the detection loop, and powered from an external 24V DC power supply.

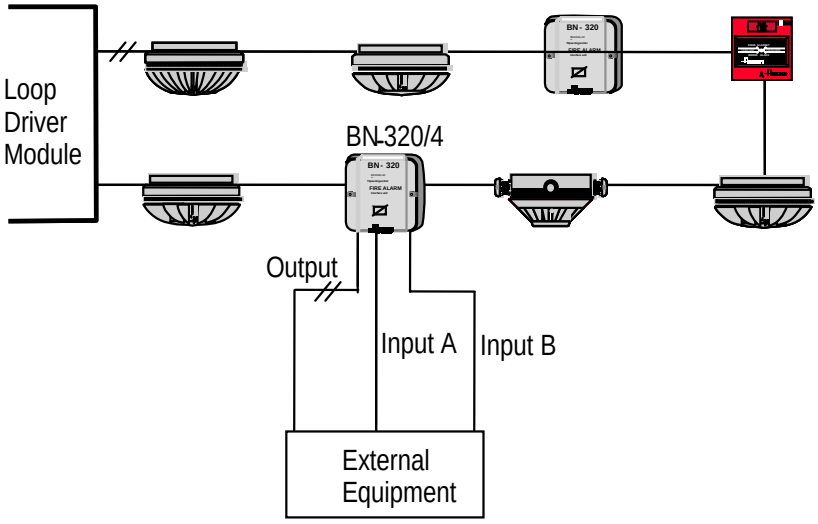


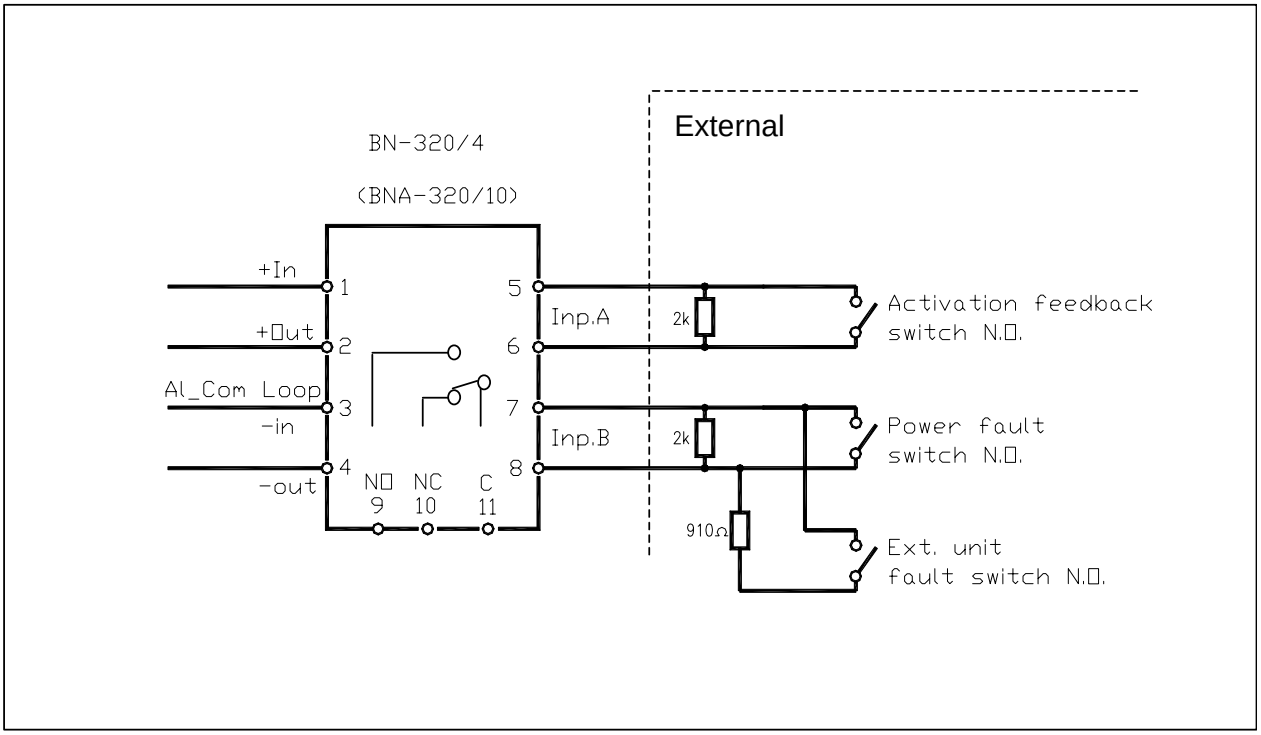


Switch 1	Closed	Open	Open	Closed
Switch 2	Open	Open	Closed	Closed
Status	Door Open	Door in transition	Door Closed	Illegal (fault)

3.15 Monitoring and Control Unit (BN-320/4)

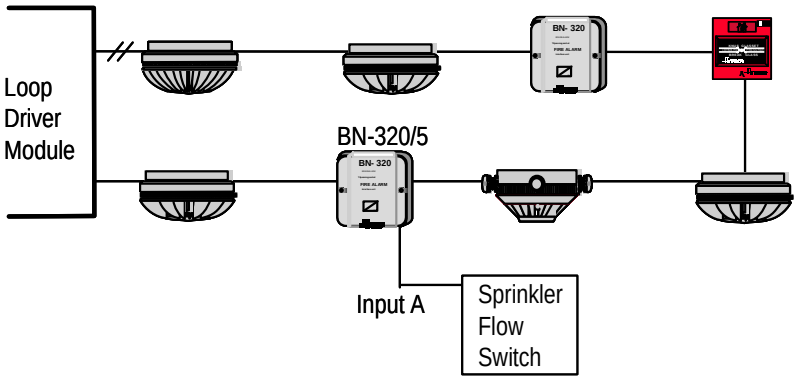
The Monitoring and Control Unit monitors and/or controls various external equipment such as control of fire dampers, ventilation valves, fans, lifts, plus fire and smoke hatches. The unit is connected to and powered from the detection loop. External equipment must have separate power supply.

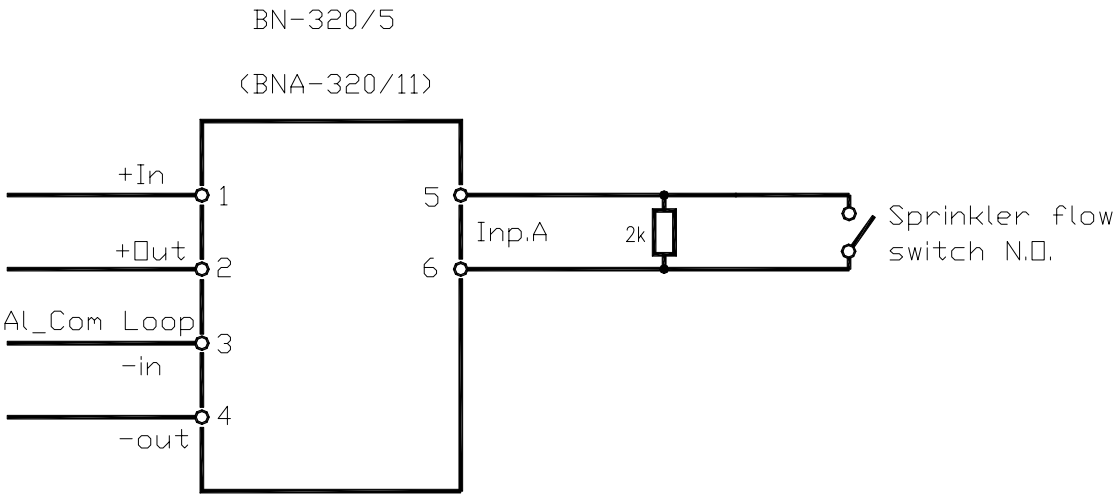




3.16 Sprinkler Control Unit (BN-320/5)

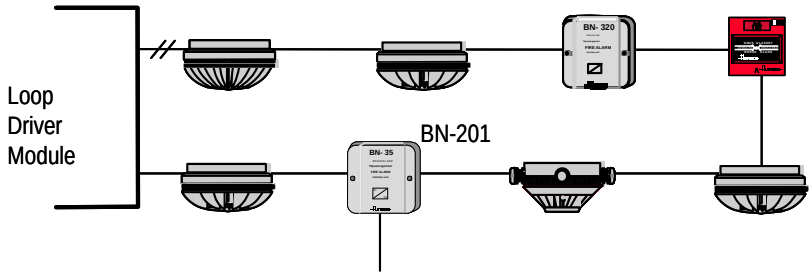
The Sprinkler Control Unit is used for monitoring and control of sprinkler systems The unit is connected to and powered from the detection loop.

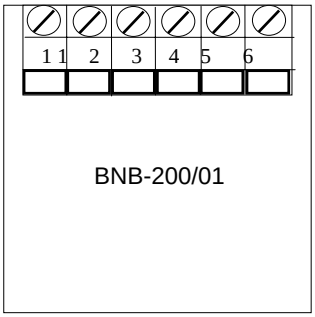




3.17 Monitoring Input Unit (BN-201)

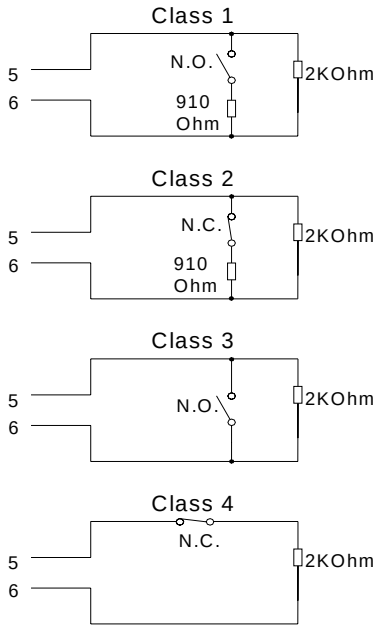
The Monitoring Input Unit is used for monitoring of fault or other signal contacts from external equipment (technical alarms).





1. Pos (+) in
2. Pos (+) out
3. Neg (-) in
4. Neg (-) out
5. (-) Input
6. (+) Input

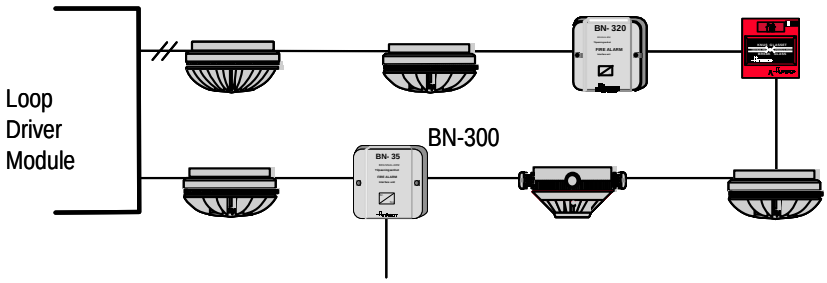
Four different classes can be configured in order to be able to monitor different setups of the fault contact (s). Each class can be set to latching or non-latching operation.

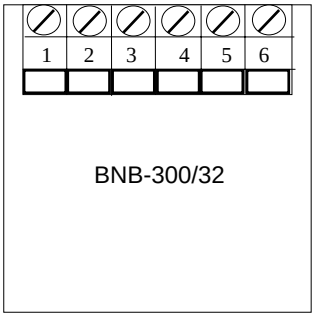


- Class 1: Normal Open contact with ‘activate’ resistor, fault monitored for open and short circuit.
- Class 2: Normal Closed contact with ‘activate’ resistor, fault monitored for open and short circuit.
- Class 3: Normal Open contact without ‘activate’ resistor, fault monitored for open circuit.
- Class 4: Normal Closed contact without ‘activate’ resistor, fault monitored for short circuit.

3.18 Input Unit with SelfVerify (BN-300)

BN-300 input unit is used to interface different types of signal devices of ON/OFF-type (for fire alarms) onto the detection loop.

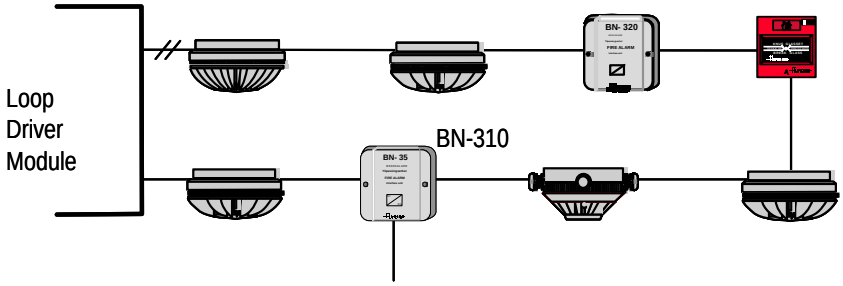


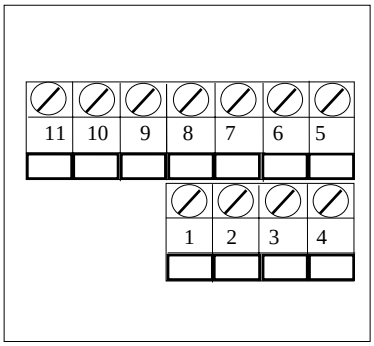


1. Pos (+) in
2. Pos (+) out
3. Neg (-) in
4. Neg (-) out
5. (-) Input
6. (+) Input

3.19 Single Relay Output Unit (BN-310)

BN-310 single relay output unit contains a potential free change-over contact which can be activated from a detector or a combination of several detectors in alarm.





1.Pos (+) in
2. Pos (+) out
3. Neg (-) in
4. Neg (-) out
} Loop

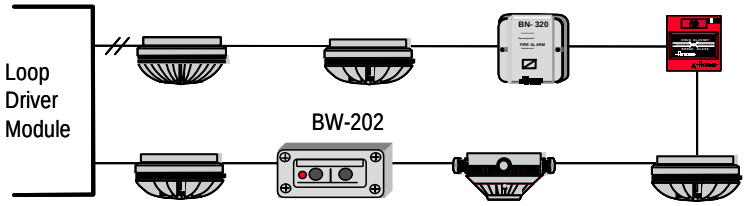
5. N.A
6. N.A
7. N.A
8. N.A
} Not for use.

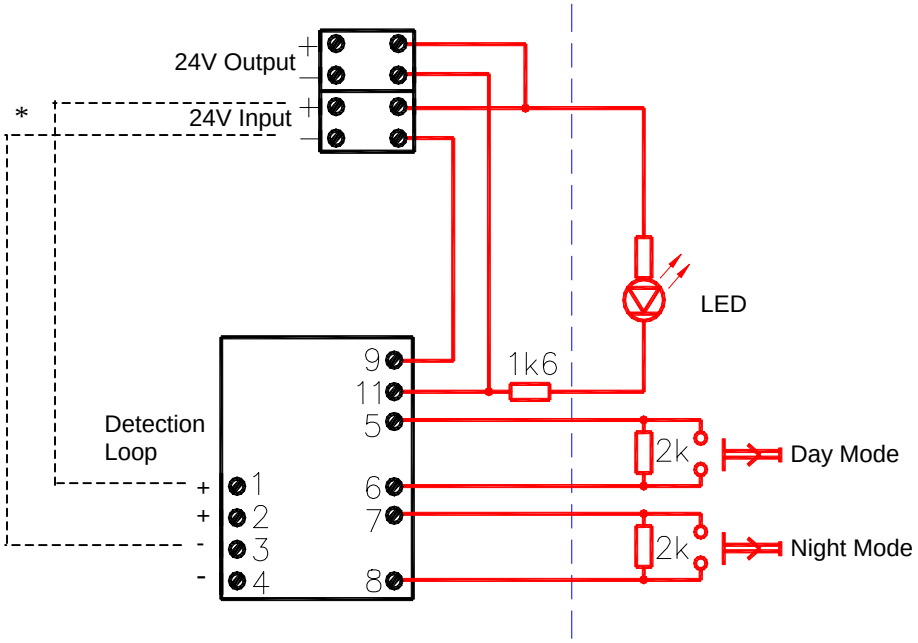
9. Normally open
10. Normally closed
11. Common
} Relay contact

3.20 Day/Night Control Unit with Pushbuttons (BW-202)

Applies to AutroSafe only.

The Day/Night Control Unit is used for remote operation of the Disable/Enable 'Immediate Output Action' commands. The unit is connected to and powered from the detection loop.





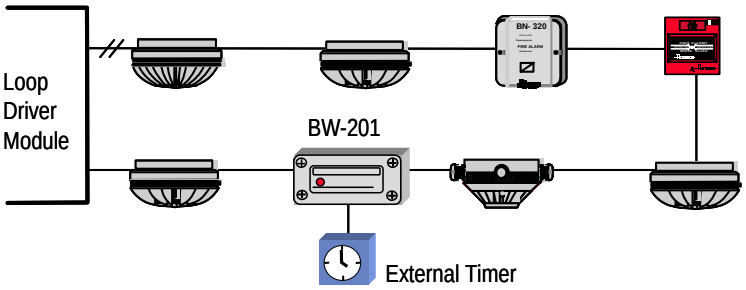
* 1 or 2 units on each loop: Connect detector loop + (1), and detector loop – (3) to 24V input.
More than 2 units on each loop: Use external 24V supply

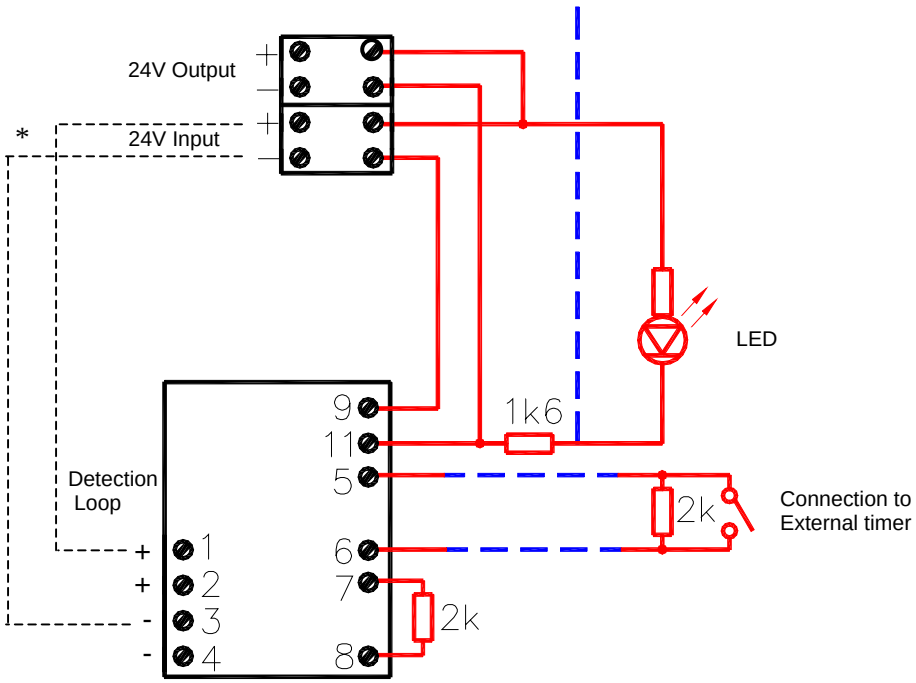
Separate 24V DC must always be used when if more than 2 units are connected to the loop, or if the 24V output is used.

3.21 Disable Input with Timer Input (BW-201)

Applies to AutroSafe only.

The Disable unit is used to disable one or a number of detection zones. The unit is connected to and powered from the detection loop. An external timer controls the disablement time.





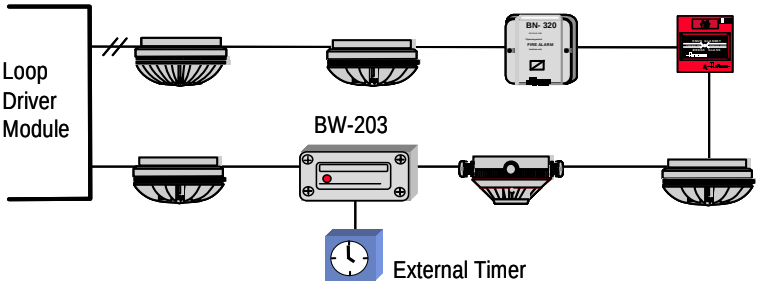
* 1 or 2 units on each loop: Connect detector loop + (1), and detector loop – (3) to 24V input.
More than 2 units on each loop: Use external 24V supply

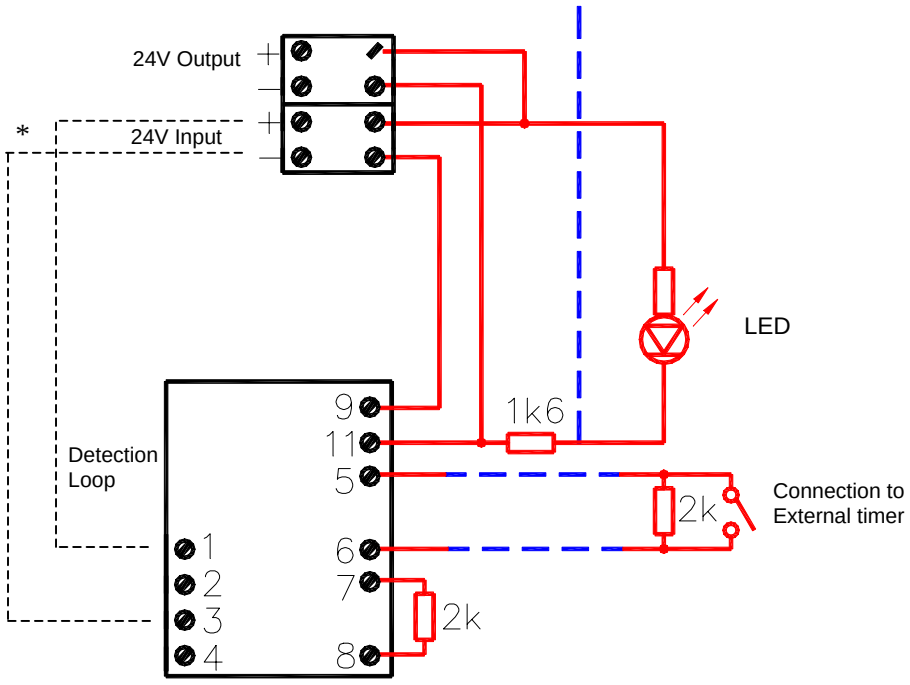
Separate 24V DC must always be used when if more than 2 units are connected to the loop, or if the 24V output is used.

3.22 Day/Night Control Unit with Timer Input (BW-203)

Applies to AutroSafe only.

The Day/Night Control Unit is used for remote operation of the Disable/Enable 'Immediate Output Action' commands. The unit is connected to and powered from the detection loop. An external timer controls the monitored input.





* 1 or 2 units on each loop: Connect detector loop + (1), and detector loop – (3) to 24V input.
More than 2 units on each loop: Use external 24V supply

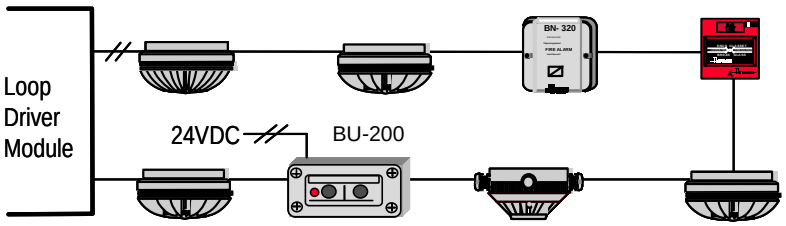
Separate 24V DC must always be used when if more than 2 units are connected to the loop, or if the 24V output is used.

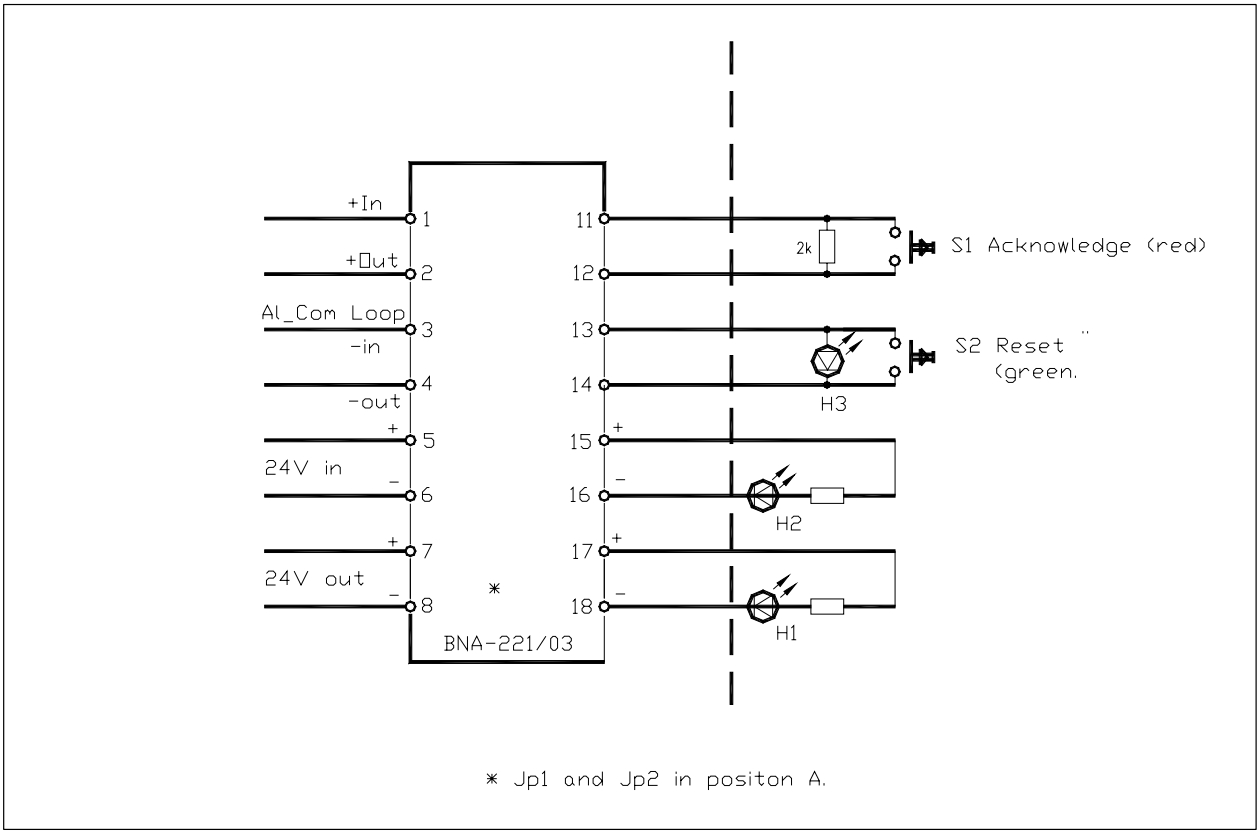
3.23 Remote Alarm Control Unit (BU-200)

Applies to AutroSafe only.

The Remote Alarm Control Unit is used for remote / local alarm handling from predefined areas / zones. The main purpose of the unit is to facilitate alarm handling without disturbance of people and unnecessary calls to rescue services, for example, the fire brigade.

The unit can send acknowledgement and reset to the Control Panel (BS-310/320/330). The Remote Alarm Unit is connected to the detection loop. Each loop unit can be connected to one Operation Zone. An Operation Zone can have one or more units, but requires separate 24V DC power.

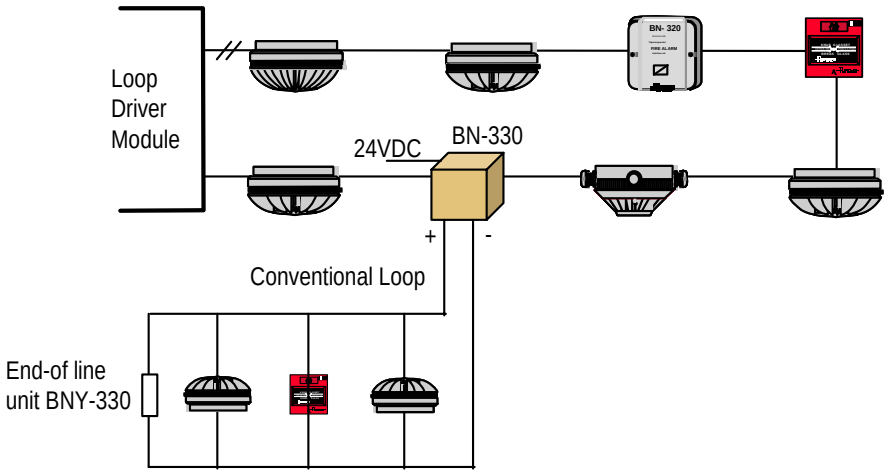




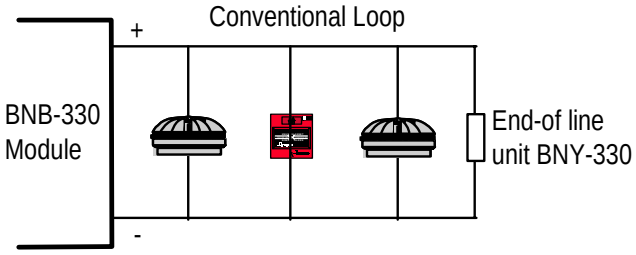
3.24 Interface Unit for Conventional Loops (BN-330)

Applies to AutroSafe only.

The *Interface Unit for Conventional Loops BN-330* consists of a BNB-330 module* mounted on a DIN-rail inside a PCM-box. The conventional detectors are connected to a two-wire sub loop. The sub loop is monitored for broken line by an end-of line unit BNY-330. The interface unit must have a separate 24V supply.



* Variant:
The internal *Conventional Loop Interface Module BNB-330* is mounted on a DIN-rail onto other internal modules inside the Fire Alarm Control Panel / Controller where it is powered with 24VDC.



Screw Terminal no.	Signal
1	+ AL-Com in
2	- AL_Com in
3	+ AL-Com out
4	- AL_Com out
5	+ 24V Input
6	0V
7	Conventional loop 15V/24V select
8	T-output / Open collector
9	+ conventional loop
10	- conventional loop

4. Reader's Comments

Please help us to improve the quality of our documentation by returning your comments on this manual:

Title: *Connecting Loop Units, Interactive Fire Detection Systems,*

Ref. No.: *116-P-CONNECTLOOPUNIT/DGB 2007-10-10*

Your information on any inaccuracies or omissions (with page reference):

Please turn the page

Suggestions for improvements

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All products are easily adaptable to a wide variety of applications, among others, hospitals, airports, churches and schools, as well as to heavy industry and high-risk applications such as power plants, computer sites and offshore installations, world wide.

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Protecting life, environment and property.

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